

Claims

1. A sensor surface with covalently-immobilized specific probe molecules for at least one biomolecule to be detected, **wherein** the positions on or regions of the sensor surface that are available in principle for nonspecific binding are inactivated by at least one blocking reagent covalently immobilized thereon.
2. The sensor surface as recited in Claim 1, **wherein** the probe molecules form an addressable pattern.
3. A sensor surface as recited in one of the foregoing claims, **wherein** the minimum of one blocking reagent is covalently immobilized on the surface by at least one photoreactive crosslinker.
4. The sensor surface as recited in Claim 3, **wherein** the minimum of one photoreactive crosslinker possesses at least one photoreactive group selected from among benzophenone or derivatives thereof, anthraquinone or derivatives thereof, thymidine or derivatives thereof, and 4-azidobenzoic acid or derivatives thereof.
5. A sensor surface as recited in one of the foregoing claims, **wherein** the sensor surface is selected from among metal, semimetal, semimetal oxide, glass and polymer surfaces.
6. The sensor surface as recited in Claim 5, **wherein** the metal surface is selected from among gold and aluminum surfaces.
7. The sensor surface as recited in Claim 5, **wherein** the semimetal surface is a silicon surface.
8. The sensor surface as recited in Claim 5, **wherein** the semimetal oxide surface is a silicon oxide or aluminum oxide surface.

9. The sensor surface as recited in Claim 5, **wherein** the glass surface is a quartz glass surface.
10. The sensor surface as recited in Claim 5, **wherein** the polymer surface is selected from among surfaces of a cyclolefin copolymer or derivatives thereof, polystyrene or derivatives thereof, polyethylene or derivatives thereof, polypropylene or derivatives thereof, polyimide or derivatives thereof, and poly(methyl methacrylate) or derivatives thereof.
11. A sensor surface as recited in one of the foregoing claims, **wherein** the probe molecule is a partner in a specific interaction system of complementary binding partners (receptor/ligand).
12. The sensor surface as recited in Claim 11, **wherein** the specific interaction system of complementary binding partners is based upon an interaction between a nucleic acid with a complementary nucleic acid, an interaction of a peptide nucleic acid with a nucleic acid, an enzyme/substrate interaction, a receptor/effector interaction, a lectin/sugar interaction, an antibody/antigen interaction, an avidin/biotin interaction, or a streptavidin/biotin interaction.
13. The sensor surface as recited in Claim 12, **wherein** the nucleic acid is a DNA or RNA or an analog thereof.
14. The sensor surface as recited in Claim 13, **wherein** the DNA or RNA is an oligonucleotide.
15. The sensor surface as recited in Claim 12, **wherein** the antibody is a polyclonal, monoclonal, chimeric, or single-chain antibody, or a functional fragment or derivative of such an antibody.

16. A sensor surface as recited in one of the foregoing claims, **wherein** the blocking reagent is selected from among casein, hydrolyzed casein, a surfactant, bovine serum albumin, fetal calf serum, newborn calf serum, and mixtures thereof.
17. The sensor surface as recited in Claim 16, **wherein** the surfactant is selected from among sodium palmitate, Brij® 35, Brij® 58, cetylpyridinium chloride monohydrate, cetyltrimethylammonium bromide, 3-[(3-cholamidopropyl)dimethylammonio]-1-propanesulfonate, 3-[(3-cholamidopropyl)dimethylammonio]-2-hydroxy-1-propanesulfonate, decane-1-sulfonic acid sodium salt, N,N-bis-[3-(D-gluconamido)propyl]deoxycholate, dodecane-1-sulfonic acid sodium salt, dodecyl- β -D-maltoside, 6-O-(N-heptylcarbonyl)methyl- α -D-glucopyranoside, heptane-1-sulfonic acid sodium salt, N-lauroylsarcosine sodium salt, octanoyl-N-methylglucamide, N-nonyl-N-methylglucamide, sodium cholate, sodium deoxycholate, nonane-1-sulfonic acid sodium salt, Nonidet P40, octane-1-sulfonic acid sodium salt, n-octyl- β -D-glucopyranoside, pentane-1-sulfonic acid sodium salt, n-octyl- β -D-thioglucopyranoside, Pluronic® F-68, saccharose monolaurate, sodium dodecyl sulfate, N-dodecyl-dimethyl-3-ammonio-1-propanesulfonate, N-tetradecyl-dimethyl-3-ammonio-1-propanesulfonate, Triton® X-100, and mixtures thereof.
18. A method for detecting the presence of analytes in a sample to be tested through the use of surface-bound receptor molecules, **wherein** a sensor surface as recited in one of Claims 1 through 17 is used.
19. An apparatus for use in a method recited in Claim 18, **wherein** the apparatus possesses a sensor surface as recited in one of Claims 1 through 17.
20. A kit for use in a method recited in Claim 18, **wherein** the kit contains a sensor surface as recited in one of Claims 1 through 17 and optionally contains buffers and assay reagents.

21. Blocking reagent, **wherein** the blocking reagent has at least one photoreactive group for covalent immobilization on a sensor surface.
22. Blocking reagent as recited in Claim 21, **wherein** the blocking reagent is selected from among casein, hydrolyzed casein, a surfactant, bovine serum albumin, fetal calf serum, newborn calf serum, and mixtures thereof.
23. Blocking reagent as recited in Claim 22, **wherein** the surfactant is selected from among sodium palmitate, Brij® 35, Brij® 58, cetylpyridinium chloride monohydrate, cetyltrimethylammonium bromide, 3-[(3-cholamidopropyl)dimethylammonio]-1-propanesulfonate, 3-[(3-cholamidopropyl)dimethylammonio]-2-hydroxy-1-propanesulfonate, decane-1-sulfonic acid sodium salt, N,N-bis-[3-(D-gluconamido)propyl]deoxycholamide, dodecane-1-sulfonic acid sodium salt, dodecyl-β-D-maltoside, 6-O-(N-heptylcarbamoyle)methyl-α-D-glucopyranoside, heptane-1-sulfonic acid sodium salt, N-lauroylsarcosine sodium salt, octanoyl-N-methylglucamide, N-nonaoyl-N-methylglucamide, sodium cholate, sodium deoxycholate, nonane-1-sulfonic acid sodium salt, Nonidet P40, octane-1-sulfonic acid sodium salt, n-octyl-β-D-glucopyranoside, pentane-1-sulfonic acid sodium salt, n-octyl-β-D-thioglucopyranoside, Pluronic® F-68, saccharose monolaurate, sodium dodecyl sulfate, N-dodecyl-dimethyl-3-ammonio-1-propanesulfonate, N-tetradecyl-dimethyl-3-ammonio-1-propanesulfonate, Triton® X-100, and mixtures thereof.
24. Blocking reagent as recited in one of Claims 21 through 23, **wherein** the minimum of one photoreactive group is selected from among benzophenone or derivatives thereof, anthraquinone or derivatives thereof, thymidine or derivatives thereof, and 4-azidobenzoic acid or derivatives thereof.
25. A method for the production of a blocking reagent as recited in one of Claims 21 through 24, **wherein** at least one blocking reagent as recited in Claim 22 or 23 is reacted with at least one crosslinker that possesses at least one photoreactive group.

26. The method as recited in Claim 25, **wherein** the minimum of one photoreactive group is selected from among benzophenone or derivatives thereof, anthraquinone or derivatives thereof, thymidine or derivatives thereof, and 4-azidobenzoic acid or derivatives thereof.
27. A kit for the production of a sensor surface as recited in one of Claims 1 through 17, **wherein** the kit contains at least one blocking reagent as recited in one of Claims 21 through 24 and optionally contains a sensor surface as well as buffers and assay reagents.